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| APPLICATION NO.                                                                                                            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 09/867,856                                                                                                                 | 05/30/2001  | Koji Hattori         | P/1071-1358         | 9007             |
| 32172                                                                                                                      | 7590        | 04/21/2004           | EXAMINER            |                  |
| DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP<br>1177 AVENUE OF THE AMERICAS (6TH AVENUE)<br>41 ST FL.<br>NEW YORK, NY 10036-2714 |             |                      | LOPEZ, CARLOS N     |                  |
|                                                                                                                            |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                                                                            |             |                      | 1731                |                  |

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/867,856

**Applicant(s)**

HATTORI ET AL.

**Examiner**

Carlos Lopez

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 14-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

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***Election/Restrictions***

Applicant's election with traverse of restriction requirement of groups I and II on 2/5/04 is acknowledged. The traversal is on the ground(s) that the method needs to be consulted when making examination of the claims drawn to the product and that a separate status in the art has not been established since the identification of the primary subclass does not constitute the entire search area for either group. This is not found persuasive. As noted in MPEP 803:

For purposes of the initial requirement, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation of separate classification, or separate status in the art, or a different field of search as defined in MPEP § 808.02. That prima facie showing may be rebutted by appropriate showings or evidence by the applicant.

The Examiner has previously shown a separate status in the art of groups I and II, since the claimed glass powder products of group II can be made by a different process other than that recited in group I. Additionally, as noted in MPEP 2113, product-by-process claims of group II are limited by and defined by the process, but determination of patentability is based on the product itself and hence requiring a different field of search as asserted in page 2 lines 1-3 of the previous office action.

Since applicant does not appropriately show evidence that the groups do not have a different classification, does not rebut that prima facie of a separate status in the art and does not rebut that a different field of search due to the product-by process of group II is required, applicant's arguments are found unpersuasive.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1) Claims 1-3 are rejected under 35 U.S.C. 103(a) as obvious over Kodas et al (US 6,360,562). Kodas discloses using a spray-thermal decomposition method for producing hollow and non-hollow glass powders (Col. 31, lines 10ff). Kodas provides a liquid feed line 102 to aerosol generator 106 wherein the liquid is turned into aerosol 108. The aerosol is then fed to a furnace 110 where glass particles 112 are produced (Col. 5, lines 19-27). The liquid feed line 102 includes multiple precursor materials which may be present in a single phase or alternatively one precursor could be in a solid state (colloidal silica) and a second precursor in a liquid phase (a metal salt) (Col. 6, lines 1-13). As shown in col. 26, lines 35ff, the liquid feed line 102 comprises metal precursors (deemed as the claimed water-soluble compound) such as nitrates, acetates and chlorides of a metal, which are highly soluble. In Col. 30, lines 31ff, the liquid solution comprises a raw material oxide powder ( $\text{SiO}_2$ ) and a precursor for the intermediate oxides ( $\text{Al}_2\text{O}_3$ ). Thus the liquid feed line comprises a mixed solution having the claimed raw material oxide powder ( $\text{SiO}_2$ ), water-soluble compound (nitrates, acetates and

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chlorides), and a different glass forming element ( $\text{Al}_2\text{O}_3$ ) all mixed into a solution and thus resulting in applicant instant claim 1 mixed solution.

The resulting glass particles 112 range in size from  $0.05\mu\text{m}$  up to about  $20\mu\text{m}$  (Col. 30, lines 37-52). Raw material oxide powder range has varying sizes from  $1\mu\text{m}$ , smaller than  $0.5\mu\text{m}$ , smaller than about  $0.3\mu\text{m}$ , or smaller than about  $0.1\mu\text{m}$  (Col. 5, lines 40-43). Thus showing that Kodas raw material powder is either not more than  $1/5$  of the average particle size of the resultant glass powder as instantly claimed or is more than about  $1/25$  of the average particle size of the resultant glass powder as instantly claimed. The aluminosilicate glass composition of Kodas has a melting point in the range of 700 to 950 degrees Celsius as evidenced by Yoshikawa et al (Machine Translation). Kodas spray thermal decomposition temperature is in the range of 300 to 1500 degrees Celsius (Col. 27, lines 49) thus showing that Kodas thermal decomposition temperatures meets Applicant's claimed treatment temperature.

As shown in Tables I and II, the formed glass has a raw material oxide powder ( $\text{SiO}_2$ ) concentration of 8 –26% by weight or 54-55% by weight falling in both of applicant's claimed raw material oxide powder concentration. Since the glass powder is formed from drops of the Kodas mixed solution, it would thus be obvious to a person of ordinary skill in the art that the concentration of Kodas solution has a concentration of less than and or optionally greater than 45% by weight as claimed by applicant

**2)** Claims 4-13 are rejected under 35 U.S.C. 103(a) as obvious over Kodas et al (US 6,360,562). As noted above Kodas discloses a spray thermal decomposition

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method for making glass powder. Claims 4 further recite the concentration of the raw material oxide powder and solutes in the mixed solution. It is noted that Kudas teaches that the concentration of the solutes is a result effective variable affecting the size of the resultant produced glass powder (Col. 27, lines 6-9). Thus it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have conducted routine experiments to determine the effective concentration that would yield the desired glass powder particle size.

Claims 6-13 recited various combinations either further limiting the particles size or changing the concentration of the raw material oxide powder in relation to the water-soluble compound. As noted above the concentration of the raw material oxide powders depend on the desired glass powder size. In the same manner Kudas teaches that the raw material oxide powder's size depends on the particular application of the glass powder (Col. 30, lines 39-41). Thus showing that the raw material oxide powder is a result effective variable, which through routine experimentation is selected based on the application of the glass powder, is being sought.

**3)** Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kudas et al (US 6,360,562) in view of Rosencwaig et al (US 4,257,799).

If applicant considers that Kudas' glass composition is different from the glass composition of Yoshikawa et al which was used to show that Kudas treats the glass raw material oxide above the melting point of the glass powder melting point, a rejection of the claims based on said interpretation follows.

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As noted above Kodas discloses a spray thermal decomposition method for making glass powder following is silent treating the glass raw material oxide above the melting point of the glass powder melting point. Rosencwaig discloses a vertical drop oven for making glass powders using the thermal decomposition method (Abstract and Col 4 lines 3-22). Rosencwaig et al teaches that thermal decomposition of a solution in a multi stage oven wherein the temperature of a stage is higher than the preceding stage results in high quality micro sphere glass powders (Col. 2, lines 55ff). The stage having the higher temperature treats the glass powder precursor solution at temperature above 200 degrees Celsius of the melting point of the glass composition precursor solution. Thus at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have thermally decomposed Kodas solution with Rosencwaig multistage oven (wherein the solution is treated at a temperature above 200 degrees Celsius of the melting point of the glass composition) to thus produce high quality micro sphere glass powders.

As for claim 4, Kodas teaches that the concentration of the solutes is a result effective variable affecting the size of the resultant produced glass powder (Col. 27, lines 6-9). Thus it would have been obvious to a person of ordinary skill in the art to conduct routine experiments to determine the effective concentration that would yield the desired glass powder particle size.

Claims 6-13 recited various combinations either further limiting the particles size or changing the concentration of the raw material oxide powder. As noted above the concentration of the raw material oxide powders depend on the desired glass powder

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size. In the same manner Kodas teaches that the raw material oxide powder's size depends on the particular application of the glass powder (Col. 30, lines 39-41). Thus showing that the raw material oxide powder is a result effective variable, which through routine experimentation is selected based on the application of the glass powder, is being sought.

### ***Response to Arguments***

Applicant's arguments filed 2/5/04 have been fully considered but they are not persuasive. Applicant argues that the only glass composition set forth by Koda is that recited in column 37 which does not contain glass the composition of Yoshikawa which alleged by applicant must have 10-30 by weight percent of an oxide of Mg, Ca or Ba. It is noted that the glass composition recited by Yoshikawa is recited in columns 29-30 of Koda more specifically see Table II. Applicant has also misread the Yoshikawa, which states that the glass composition is 10-30 by weight percent of RO wherein R is one or more kinds of Mg, Ca, and Ba. In the instant case Koda includes at the minimum 16% by weight of CaO and BaO (see table II in Col. 30) thus it is evidenced by Yoshikawa that Kodas glass composition has a melting point in the range of 700-950 degrees Celsius which would indicate that the decomposition temperature used by Kodas of at most 1500 degrees Celsius would read on applicant claim 1 reciting that the decomposition temperature is not less than the melting point of the glass plus about 20 degrees Celsius.

In regards to applicant's argument that Koda has failed to provide anticipation said is argument is moot since the 102(e) rejection has been withdrawn.



Applicant also argues and notes that “nothing in the Kudas patent has an indication there should be any particular relationship whatsoever between the decomposition temperature and the quantity of the solid and the size of the solid. Accordingly, there is no factual basis on which to base a rejection of obviousness and the rejections should be withdrawn.” It is unclear to what applicant’s arguments are directed to. The office action, the Kudas patent, nor the claims, present said argued subject matter, a relationship between the decomposition temperature and the quantity of the solid and the size of the solid. Rosencwaig does teach that the temperature of the thermal composition having a multi-stage oven wherein one of the stages treats the glass composition to a temperature above 200 degree Celsius of the melting point produce high quality micro sphere glass. Hence one of ordinary skill in the art would be motivated to use the multistage oven of Rosencwaig in Kudas glass powder production of in order to produce high quality micro sphere/powder glass.

Applicant also alleges that the feed line of Kudas have suspended particles in an amount not greater than about 15%. It is unclear where applicant gets the alleged 15% since Kudas only teaches that the concentration of the solute would depend on the desired glass particle size. Thus it would be obvious to a person of ordinary skill in the art to adjust the concentration of the solute to a predetermined amount to obtain the desired particle size.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CL

  
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